

Highly Reactive Volatile Organic Compounds Fugitive Emissions Audit Provisions

HRVOC Stakeholder Group Meeting





Background Information

- As suggested by the EPA in comments during the 2004 rulemaking, the TCEQ agreed to review third-party audit reports to determine if the fugitive emissions monitoring program was being successfully implemented.
- Upon initial review, several issues were identified within the third-party audit reports.
- The goal of this meeting is to provide guidance and answer questions on the report requirements to help ensure a successful third-party audit program.



Audit Provisions §115.788

- Requires an annual third-party audit of the HRVOC fugitive emissions monitoring program.
- Help ensure effective implementation of the fugitive monitoring program.
- The audit and audit report requirements include:
 - verification of leak tags;
 - review of the previous quarters monitoring data;
 - field survey; and
 - corrective action plan.



Verification of Leak Tags

- 115.788(d)(1) – Report the number of valves that were not tagged, but should have been tagged in accordance with §115.782(a) of this title.



Verification of Leak Tags

Audit Report Suggestions 115.788(d)(1)

- Include the number of valves not properly tagged and the total number of valves verified during the audit.
 - Out of the 15 leaking valves at the plant during the time of the third-party audit, there were zero instances where a component was improperly tagged.
- Report instances when there are no leak tags to verify.
 - At the time of the third-party audit, there were zero leak tags to verify.



Review of the Previous Quarters Data

- 115.788(d)(5) – Summarize the third-party review of all data generated in the previous quarter to verify the proper implementation of Test Method 21.
 - Identify abnormal data patterns including, but not limited to, the number of valves monitored per technician, the time between monitoring events, and specific instances in which a monitoring technician recorded data faster than was physically possible.
 - Review of records to verify that the calibration requirements of Test Method 21 have been properly implemented.



Review of the Previous Quarters Data

Audit Report Suggestions 115.788(d)(5)

- Summarize the review of the number of valves monitored per technician and detail specific instances where excessive monitoring was observed.
- Summarize the records review of the time between monitoring events and describe specific instances where that time was faster than physically possible.
- Summarize the review of calibration records to determine compliance with Test Method 21 requirements.



Generating a Random Sample

- 115.788(d)(2) – Describe in detail the sampling scheme used to ensure that a random sample of valves was selected so that each valve had an equal chance of being selected.
 - include all valves at the site in HRVOC service that are not exempt in 115.787 and are not listed as either the difficult-to-monitor or unsafe-to-monitor.



Generating a Random Sample

Audit Report Suggestions 115.788(d)(2)

- The identification numbers from the list of affected valves was entered into a database. A commercially available software package was then used to randomize those numbers and create a new database. The sample size was determined to be 500 so the first 500 identification numbers from the randomized database were selected to be monitored for the field study.



Determining Sample Size

- 115.788(d)(4) – Report the methodology used to select the field survey sample size.
 - 115.788(a)(2)(B) – Table 1
 - 115.788(a)(2)(C) – Alternative method
- Report the method used even if Table 1 was used to determine sample size.
- If the alternative method was used, include the actual Type I and Type II error rates associated with the sample size used and a detailed description of the methodology used to calculate the sample size.



Determining Sample Size

Total Population Valve Count	Company Claimed Leaker Rate					
	0.000 up to 0.005	0.006 up to 0.010	0.011 up to 0.015	0.016 up to 0.020	0.021 up to 0.025	0.026 up to 0.030
100 to 150	87	101	110	110	116	120
151 to 300	139	159	165	173	193	200
301 to 400	152	167	183	204	228	165
401 to 500	155	172	201	234	250	278
501 to 600	158	207	220	263	281	295
601 to 700	159	211	238	266	303	319



Determining Sample Size

- **Total Population Valve Count** = all of the valves in HRVOC service that are not exempt from quarterly monitoring in 115.787 and are not listed on either the difficult-to-monitor or unsafe-to-monitor lists based on the **average** of the previous four quarters monitoring data.
- **Company Claimed Leaker Rate** = the number of leaking valves found in the Total Population Valve Count based on the previous four quarters of monitoring data divided by the Total Population Valve Count.



Determining Sample Size

	Total Population Valve Count	Number of Leaks	Company Claimed Leaker Rate
Q 1	400	6	0.015
Q 2	450	8	0.018
Q 3	450	10	0.022
Q 4	520	9	0.017
Average	455	8	0.018



Determining Sample Size

Total Population Valve Count	Company Claimed Leaker Rate					
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Data Reporting

- 115.788(d)(2) – Field survey data:
 - the number of valves monitored;
 - the number of leaking valves found; and
 - the percentage of leaking valves.



Data Reporting

- 115.788(d)(3) – Site history data:
 - the total number of valves in HRVOC service that are not exempted from quarterly monitoring by §115.787 and are not listed on either the difficult-to-monitor or the unsafe-to-monitor lists monitored based on the **average** of the previous four quarters of monitoring;
 - the total number of leaking valves found at the site by the usual monitoring service based on the **average** of the previous four quarters of monitoring; and
 - the percentage of leaking valves based on the **average** of the previous four quarters of monitoring.



Data Reporting

Audit Report Suggestions 115.788(d)(3)

- The total number of valves in HRVOC service is 455 (Q1=400, Q2=450, Q3=450, Q4=520).
- The total number of leaking valves is 8 (Q1=6, Q2=8, Q3=10, Q4=9).
- The percentage of leaking valves is 1.8% (Q1=1.5%, Q2=1.8%, Q3=2.2%, Q4=1.7%).



Corrective Action Plan

- 115.788(e) – If the results of the independent third-party audit indicate deficiencies in the implementation of Test Method 21, submit a corrective action plan with the audit report to the Houston regional office or any local air pollution control agency having jurisdiction.
- 115.788(h) – Upon review of the audit results, the executive director may specify additional corrective actions beyond any potential corrective actions submitted in accordance this section.



Corrective Action Plan

Audit Report Suggestions 115.788(e)

- Identify the cause of the deficiencies.
- Provide a detailed description of measures to correct the deficiencies identified by the third-party audit.
- Provide for follow up measures to ensure the corrective actions are effective.
- Ensure the plan is thorough and designed for the long-term success of the fugitive emissions monitoring program.



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